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**MULTIPLE AZIMUTH CONTROL OF HYDRAULIC VERTICAL
FRACTURES IN UNCONSOLIDATED AND WEAKLY
CEMENTED SEDIMENTS**

ABSTRACT OF THE DISCLOSURE

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The invention is a method and apparatus for initiating multiple azimuth controlled vertical hydraulic fractures in unconsolidated and weakly cemented sediments from a single bore hole to control the fracture initiation and propagation of hydraulic fractures at differing azimuths. The multiple azimuth vertical fractures enable greater yield and increased recovery of petroleum fluids from the formation. An injection casing with multiple fracture initiation sections is inserted and grouted into a bore hole. A fracture fluid carrying a proppant is injected into the injection casing and opens fracture initiation sections to dilate the formation in a direction orthogonal to the first fracture azimuth plane. Following completion of the first fracture injection, the fracture fluid is injected into the injection casing and opens a set of second and subsequent fracture initiation sections dilating the formation and initiating and propagating a second and subsequent vertical hydraulic fractures at different azimuths to the first and subsequent earlier installed fractures. The injection casing initiation sections remains open after fracturing providing direct hydraulic connection between the production well bore, the permeable proppant filled fractures and the formation.